

REMARKS

Claims 8-15 are currently pending in this application.

For the following reasons the application should be allowed and passed to issue.

Claim Rejections Under 35 U.S.C. § 103(a)

A. Mohanty et al U.S. Patent Publication Number 2003/0216496 (“Mohanty”), or Ohme et al U.S. Patent Publication 2004/024803 (“Ohme”) in view of Fumitomo JP2002-241566 (“Fumitomo”) and Gilman et al Fire retardant additives for polymeric materials 1. Char formation from silica gel-potassium carbonate. Thirteenth meeting of the UJNR panel of fire research and safety, March 13-20, 1996, vol. 2) (“Gilman”).

Claims 8-10 and 13-15 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mohanty or Ohme, in combination with Fumitomo or Gilman. Applicants respectfully traverse the rejection.

Claims 8, 13, 14 and 15 each recite, in pertinent part, subject matter “*wherein said flame retardancy-imparting component is **supported** on an inorganic porous material.*”

The Examiner at page 3 of the Office Action dated May 27, 2008, concedes that neither Mohanty nor Ohme disclose a flame retardancy-imparting component, but then asserts that Gilman teaches a fire retardant on porous silica gel and that Fumitomo teaches a flame retardant on antimonous oxide support. Finally, the Examiner concludes that it would have been obvious to a person having ordinary skill in the art to combine either Gilman or Fumitomo with Mohanty or Ohme.

However, in order to establish a *prima facie* obviousness rejection under 35 U.S.C. § 103(a), basic criteria must be met. First, there must be some suggestion or motivation, either in

the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Further, "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006).

As an initial matter, and at a minimum, the combination of cited prior art references simply fails to teach or suggest subject matter "*wherein said flame retardancy-imparting component is **supported** on an inorganic porous material.*"

Fumitomo, explains that "[i]f silica gel, chlorine-based fire retardant, and a fire-resistant auxiliary agent are used together, a chemical mechanism is not clear but it is thought that a certain synergy occurs and the fire-resistant effect outstanding as compared with the case where each is used independently is acquired" (see paragraph [0007] of Fumitomo).

However, Fumitomo, does not teach or suggest an embodiment wherein the fire retardant *is supported* on the inorganic porous material. According to the Example on page 3, the silica gel and the fire retardant are simply **mixed** (kneaded) with the other components (see page 3, paragraph [0011]). This is not what is recited by the instant claims.

As such, Fumitomo does not teach or suggest a configuration in which fire retardant is *supported* on an inorganic porous material.

Moreover, Gilman also suffers from a similar deficiency as Fumitomo.

Gilman, describes "(s)ilica gel combined with potassium carbonate is an effective fire

retardant for a wide variety of common polymers ---." Gilman, however, does not teach or suggest an embodiment wherein the potassium carbonate is supported on the silica gel. In the EXPERIMENTAL section on page 261, Gilman teaches additives that include silica gel and potassium which are mixed with the polymers by grinding the powders together in a mortar and pestle (see page 262).

In contrast, the subject matter of the instant claims recites the flame retardancy-imparting component is "supported on an inorganic porous material." This "supported" flame retardancy - imparting component on the inorganic porous material is obtained by immersing the inorganic porous material in a liquid in which the flame retardancy-imparting component to be supported is dissolved or dispersed.

In other words, the "support" is achieved by incorporation of the flame retardancy-imparting component into the inorganic porous material and is different from mixing of the flame retardancy-imparting component with the inorganic porous material. This is an important distinction, as the recited configuration yields unexpectedly better results, thereby rebutting any assertions of obviousness. In particular, the "supported" flame retardancy-imparting component on the inorganic porous material shows excellent flame retardancy compared to the mixture of the flame retardancy-imparting component and the inorganic porous material. This is explained by the inventor in the attached Declaration by inventor Takehiro Yamashita.

As described in the Yamashita Declaration under 37 C.F.R. § 1.132, the flame retardancy rating of the resin composition wherein the flame retardancy-imparting component was supported on the inorganic porous material was "VO," while the flame retardancy rating of the resin composition wherein the flame retardancy-imparting component was mixed with the inorganic porous material, was "V2." As explained in the Yamashita declaration, Experiments 1-4 each

comprised different flame-retardant components **mixed** with the porous material (SiO₂). Each of these resultant compositions resulted in a flame retardation rating of V2.

In comparison, **Examples** 1-4 each comprised different flame-retardant component corresponding to Experiments 1-4, however, the flame-retardant component in each of Examples 1-4 were not mixed with the porous material (SiO₂), but **supported** on the porous material (SiO₂).

Each of the Examples 1-4 resulted in a flame retardation rating of V0, an unexpectedly better flame retardation rating than the V2 rating obtained by the mixed configurations of Experiments 1-4.

Although the same content of the flame retardancy-imparting component, the same content of the inorganic porous material and the same resin components were employed in both the corresponding Experiments and Examples, the configurations in which the flame retardancy-imparting component was **supported** on the inorganic porous material, as recited by the pending claims, achieved better than expected results. Indeed, one having ordinary skill in the art would not have expected such results.

Therefore, the Applicants respectfully submit that the subject matter of the instant claims would not be obvious to one having ordinary skill in the art.

Accordingly, it is respectfully submitted that claims 8, 13, 14 and 15 are allowable over the cited prior art references.

Furthermore, claims 9-12 depend from, and further define the subject matter of claim 8 and therefore are also allowable over the cited prior art references.

B. Mohanty or Ohme, in combination with Fumitomo or Gilman and further in view of Dorfman

Claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mohanty or Ohme, in combination with Fumitomo or Gilman and further in view of Dorfman US Patent Number 3,983,185. Applicants respectfully traverse the rejection.

As discussed above, at a minimum, neither Mohanty, Ohme, Fumitomo or Gilman, either alone or in combination, teach or suggest a configuration in which “*wherein said flame retardancy-imparting component is **supported** on an inorganic porous material,*” as recited, in pertinent part in claim 8, 13, 14 and 15.

Dorfman fails to ameliorate these deficiencies in Mohanty, Ohme, Fumitomo and Gilman as Dorfman does not teach or suggest a configuration *wherein said flame retardancy-imparting component is supported on an inorganic porous material,*” as recited, in pertinent part in claims 8, 13, 14 and 15.

Moreover, as discussed *supra*, the claimed configuration has unexpectedly superior results.

As such, claims 8, 13, 14 and 15 are not obvious over the cited prior art.

Accordingly, claims 8, 13, 14, and 15 are allowable.

Furthermore, claims 9-12 depend from, and further define the subject matter of claim 8 and therefore are also allowable over the cited prior art references.

Conclusion

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this

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Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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